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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/743,560	01/09/2001	Kenji Obara	16869P-01910	4021

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EXAMINER

QUASH, ANTHONY G

ART UNIT PAPER NUMBER

2881

DATE MAILED: 08/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/743,560

Applicant(s)

OBARA ET AL.

Examiner

Anthony Quash

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Claims 1-7 have been canceled by applicants' amendment, paper number 7.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8-11, 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki [JP 09-139,406]. As per claim 8, Yamazaki [JP 09-139,406] teaches a sample observation method comprising the steps of, moving the sample in a viewing field of the imager and acquiring a defective sample image including the defect on the sample at a first scale factor with the imager, based on the information on the defect on the sample detected by the inspection apparatus, locating the defect on the defective sample image by comparing the reference sample image and the defective sample image, acquiring a magnified image of the located defect at a second scale factor greater than the first scale factor with the imager without moving the sample, and displaying the magnified image of the defect on a screen. See Yamazaki [JP 09-139,406] abstract, pages 1-3, and figs. 1-2. Although Yamazaki [JP 09-139,406] does not explicitly state acquiring a reference sample image not including any defect on a

sample with an imager, based on the information on a defect on the sample detected by an inspection apparatus, Yamazaki [JP 09-139,406] does teach acquiring an image of the sample based on information on the defect on the sample detected by an inspection apparatus. See Yamazaki [JP 09-139,406] abstract, page 2, paragraphs 3-6. In addition, Yamazaki [JP 09-139,406] teaches that the imager is aligned based upon information provide by the inspection apparatus. See Yamazaki [JP 09-139,406] abstract, page 2, paragraphs 3-6. In addition, it is known in the art that during the alignment of an apparatus which images specific areas having defects, that one also acquires images of areas not having the defect during the alignment while the imager is on. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to acquire a reference sample image not including any defect on a sample with an imager, based on the information on a defect on the sample detected by an inspection apparatus in order to aid in the alignment of the imaging apparatus with the defect and indicate to the observer which areas were defect free.

As per claim 9, Yamazaki [JP 09-139,406] teaches a sample observation method comprising the steps of acquiring a defective sample image including the defect on the sample at a first scale factor by the imager, locating the defect on the defective sample image by comparing the reference sample image and the defective sample image, acquiring a magnified image of the located defect at a second scale factor greater than the first scale factor with the imager without changing the position of the sample, and displaying the magnified image of the defect on a screen. See Yamazaki [JP 09-139,406] abstract, pages 1-3, and figs. 1-2. Although Yamazaki [JP 09-139,406] does

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not explicitly state acquiring a reference sample image not including any defect on a sample with an imager, based on the information on a defect on the sample detected by an inspection apparatus, Yamazaki [JP 09-139,406] does teach acquiring an image of the sample based on information on the defect on the sample detected by an inspection apparatus. See Yamazaki [JP 09-139,406] abstract, page 2, paragraphs 3-6. In addition, Yamazaki [JP 09-139,406] teaches that the imager is aligned based upon information provide by the inspection apparatus. See Yamazaki [JP 09-139,406] abstract, page 2, paragraphs 3-6. In addition, it is known in the art that during the alignment of an apparatus which images specific areas having defects, that one also acquires images of areas not having the defect during the alignment while the imager is on. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to acquire a reference sample image not including any defect on a sample with an imager, based on the information on a defect on the sample detected by an inspection apparatus in order to aid in the alignment of the imaging apparatus with the defect and indicate to the observer which areas were defect free. With respect to the applicants' claim of adjusting a position of the sample so that the defect will fall within the field of view of the imager, based on the information, Yamazaki [JP 09-139,406] teaches the all aspects of the claimed invention except that Yamazaki [JP 09-139,406] teaches adjusting the position of the imager so that the defect will fall within the field of view, based on the information instead of adjusting a position of the sample so that the defect will fall within the field of view of the imager, based on information. See Yamazaki [JP 09-139,406] page 2, paragraphs 3-5. Since the

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positioning of an imager relative to a sample is equivalent to positioning the sample relative to the imager, for viewing a defect. One of ordinary skill in the art would have found it obvious to substitute positioning the sample relative to the imager, for positioning of an imager relative to a sample in order to provide a better view of the defect.

As per claim 10, Yamazaki [JP 09-139,406] teaches subsequent to the step of acquiring a magnified image, a step of erasing a background from the magnified image of the located defect. See Yamazaki [JP 09-139,406] abstract, and fig. 1.

As per claim 11, Yamazaki [JP 09-139,406] teaches the reference sample image and the defective sample images being the images of the sample captured in secondary electrons emanated from the sample by irradiation of a charged particle beam. See Yamazaki [JP 09-139,406] abstract, pages 1-3, and figs. 1-2.

As per claim 12, Yamazaki [JP 09-139,406] teaches acquiring an image of a sample, storing information of an area to be observed on the sample, controlling the position of the sample with respect to the image pickup means, based on the information stored, displaying images of the sample acquired, and locating a defect on the sample by comparing a plurality of images of the sample captured by the image pickup means at a first scale factor after the sample is positioned, and locating the defect image at a second scale factor greater than the first scale factor without changing the position of the sample. See Yamazaki [JP 09-139,406] abstract, pages 1-3, and figs. 1-2. However, Yamazaki [JP 09-139,406] does not explicitly state image pickup means, information storage means, position controller, and display means. Yamazaki

[JP 09-139,406] does however, teach that the system used is an electron microscope system/ scanning electron microscope, which in inherently contains image pickup means, information storage means, position controller, and display means. Since the fore mentioned aspects are inherent to an electron microscope system/scanning electron microscope, the examiner maintains that Yamazaki [JP 09-139,406] teaches the claim as recited by the applicants.

As per claim 13, Yamazaki [JP 09-139,406] teaches storing information on a defect on a sample detected by an external defect inspection apparatus, acquiring an image of the sample, controlling a position of the sample, based on information stored, locating the defect by comparing an image of the sample not including the defect and image of the sample including the defect, wherein both of the images are acquired at a first scale factor after the sample is positioned, and displaying an image of the defect, at a second scale factor that is greater than the first scale factor without changing the position of the sample. See Yamazaki [JP 09-139,406] abstract, pages 1-3, and figs. 1-2. However, Yamazaki [JP 09-139,406] does not explicitly state image pickup means, information storage means, position controller, and display means. Yamazaki [JP 09-139,406] does however, teach that the system used is an electron microscope system/ scanning electron microscope, which in inherently contains image pickup means, information storage means, position controller, and display means. Since the fore mentioned aspects are inherent to an electron microscope system/scanning electron microscope, the examiner maintains that Yamazaki [JP 09-139,406] teaches the claim as recited by the applicants.

As per claim 14, Yamazaki [JP 09-139,406] teaches acquiring an image of the sample, controlling a position of the sample so that a defect on the sample will fall within the field of view of the imager, based on the information on the defect on the sample detected by an external defect inspection apparatus, locating the defect by comparing an image of the sample not including the defect and an image of the sample including the defect, wherein both of the images are acquired at a first scale factor after the sample is positioned, and displaying an image of the defect, and capturing an image at a second scale factor that is greater than the first scale factor without changing the position of the sample. See Yamazaki [JP 09-139,406] abstract, pages 1-3, and figs. 1-2. However, Yamazaki [JP 09-139,406] does not explicitly state image pickup means, information storage means, position controller, and display means. Yamazaki [JP 09-139,406] does however, teach that the system used is an electron microscope system/scanning electron microscope, which in inherently contains image pickup means, information storage means, position controller, and display means. Since the fore mentioned aspects are inherent to an electron microscope system/scanning electron microscope, the examiner maintains that Yamazaki [JP 09-139,406] teaches the claim as recited by the applicants.

As per claim 15, Yamazaki [JP 09-139,406] teaches the image pickup means being a scanning electron microscope. See Yamazaki [JP 09-139,406] abstract.

As per claims 16-17, Yamazaki [JP 09-139,406] teaches acquiring a magnified image of the reference sample at the second scale factor with the imager, and displaying the magnified image of the reference sample on the screen with the

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magnified image of the located defect. See Yamazaki [JP 09-139,406] abstract, pages 1-3, and figs. 1-2. However, Yamazaki [JP 09-139,406] does not explicitly state moving the sample to acquire a magnified image of the reference sample with the imager.

Yamazaki [JP 09-139,406] does teach alignment of the sample to an electron-microscopic-specimen base for imaging the sample and defect. See Yamazaki [JP 09-139,406] page 2, paragraphs 2-5. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to move the sample to acquire a magnified image of the reference sample with the imager in order to obtain a better view of the defect.

Response to Arguments

Applicant's arguments with respect to claims 8-15 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent No. 6,246,788 is considered pertinent because of its discussion on a system and method for optically inspecting manufactured devices.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

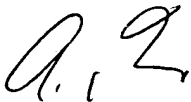
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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Quash whose telephone number is (703)-308-6555. The examiner can normally be reached on M-F from 9 a.m. to 5 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee, can be reached on (703)-308-4116. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-308-0956.



A. Quash 8/13/03



BRUCE ANDERSON
PRIMARY EXAMINER